

METHODOLOGY

To gather information sufficient to address the stated objectives, a total of 20 one-on-one in-depth interviews will be conducted with executives from a mix of potential basic VDT customers likely to have considered the opportunities associated with Level 1 access.

Recruiting will be key to insuring that the value of the feedback is optimized. High level personnel will be used to screen potential participants to help insure that both the entity and the individual selected fit the stated criteria. Interviews will be conducted at the respondent's place of business by an independent researcher with considerable telecommunications industry research experience.

To insure that feedback is most relevant to potential U S WEST opportunities, the research will focus on entities interested in providing service within U S WEST's territory, specifically Omaha and the top five *video* metro areas (i.e., Phoenix, Denver, Portland, Seattle, and Minneapolis).

The research vendor will adhere to a detailed discussion guide developed in conjunction with MR&A and the client to meet the stated information objectives. Interviews will be conducted using a progressive approach. That is, as each interview is completed the vendor will provide a verbal overview which will be used as input for potential additions/deletions to subsequent interviews. The client will be briefed on an ongoing basis throughout the interview process.

Interviews will be completed with businesses within the following categories:

- MSO's wanting VDT access for competitive video offerings.
- Competitive Access Providers (e.g., MFS).
- Interexchange Carriers which have entered or might enter the cable business with programming partners.
- Another RBOC.
- Level 2 providers.
- Level 3 providers.
- Sophisticated large businesses with videoconferencing needs.
- State or federal government agencies wishing direct video access to constituents.
- Universities with videoconferencing/broadcast needs.
- Major church affiliations with videoconferencing/broadcast needs.
- Cable network (ESPN, Showtime, etc.).
- Local broadcasters.

MR&A will look to the client for input into a list of specific companies to contact within each category. Should additional categories be identified through the recruiting process, the decision to pursue these will be made in conjunction with the client.

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RESEARCH CONSIDERATIONS

Because the research could be perceived by participants as an attempt to gain competitive information, the approach to how the study is represented should be handled as follows:

- Initially, U S WEST will not be specifically identified as the sponsor. Interviews will be positioned as an attempt by an RBOC to gain an understanding of the VDT industry and the needs of potential customers.
- If certain participants refuse to participate without prior knowledge of the sponsor, U S WEST will be identified as the sponsor of the research at the client's discretion.

Insight from the vendor will be valuable in helping determine which approach will likely yield the most valuable feedback.

Should it become clear that participation is not meeting the stated objectives, a cash incentive for respondents will be considered (e.g., \$75 for a one hour interview).

EXPECTED OUTPUT

- An overview of the current marketplace for Level 1.
- A synthesis of potential opportunities, both current and future, for U S WEST as a provider of Level 1 access.
- A summary of characteristics and a list of current and future hypothesized needs of potential Level 1 providers.
- An indication of the timing of these needs and opportunities.
- Recommendations on how U S WEST should proceed with Level 1 from both a business strategy standpoint.
- Typed transcripts of interviews.

SCHEDULE

Task	Date*
Proposal Approved	10/25/93
Sample List Received From Client	10/28/93
Begin Recruiting	10/29/93
Discussion Guide Approved	11/05/93
Recruiting Complete	11/05/93
Interviews Begin	11/08/93
Interviews Complete	11/24/93
Top Line Summary	12/08/93
Final Report	12/17/93

*All subsequent completion dates are contingent upon actual week of this task's accomplishment.

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COSTS

The cost of this research is \$35,000.00 +/- 10% to be paid by the client.

Note: These costs estimate travel to six cities to complete the 20 interviews. If travel to additional cities is required, cost may be effected.

APPROVALS

Susan Portwood
USWC Strategy Development

Date: _____

Ginger Saylor
Associate Director
Market Strategy and Development

Date: _____

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SM 11/25/93

BBC
**Project Turkey Dinner
Discussion Outline
Draft 1.0**

**U S WEST SM, MSD
November 25, 1993**

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REASON FOR IMPROVEMENT

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U S WEST's in-region and out-of-region strategies represent two very different approaches to the market place and competitive positioning. The positive capital market response to the out of region approach with Time Warner indirectly calls into question the in-region play. A QI story approach is proposed to facilitate the decision process regarding the need to continue, modify, accelerate, or abandon investment in the in-region "targeted" broadband network.

If we can beat the RBOC out of region, we must be able to demonstrate that we understand and can manipulate the strategic factors which allow us to win as the RBOC in-region

CURRENT SITUATION

- U S WEST has committed to out-of-region broadband with Time Warner
- U S WEST has announced plans for in-region broadband in major cities
- U S WEST is ready to start construction of the Omaha trial city
- ~~Entertainment is the lead of the in region broadband strategy~~

Cost savings, flexibility drives

- Several projects in MSD relate to the broadband strategy:

1. Interactive Marketing and Merchandising (IMM) Strategy, 1/94, Bob Grant
 - Level 1 Market Opportunity Assessment, 1/94 *Long*
 - Interactive Games, 12/93 - *play w/ different penetration revenue overseas Susan Portwood*
 - Video Telephony II, TBD - *J.D.*
2. Rapid Response, 12/93 - *J.D.*
 - Broadband Applications, TBD *K. Marshall*
 - Economics of Second Networks, TBD
 - Electronic Highway Anchor Tenants, 3/94 - *Annette Deal - use states a catalyst David Stewart*
 - U.K. Strategy, 5/94 → *Robin Williamson*
 - CIC Publication Plan - Wireless and Multimedia, 12/93 - *directory functionality to integrate identity functionality NV Parker*
 - Multimedia - Needs Identification, 12/93 - *Turner Fisher*
3. Out of Region Branding, TBD → *umbrella strategy?*
4. Multimedia Group - Scenario Activity, TBD → *will come together follows rapid response*
 - Broadband Gaming Exercise, TBD
 - In-region branding strategy - *(Steve Bellis)*

While these projects add considerable knowledge to our decision process, they do not directly address the in-region / out-of-region dilemma

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ANALYSIS

The following model can be used to help us identify the key controllable strategic factors and how to manipulate them:

1. State the key questions which must be answered
2. State the question in the form of a provable or disprovable hypothesis
3. State the assumptions behind a true hypothesis
4. Identify the analytics required to prove the assumption
5. Assign the tasks to complete the analytics
6. Develop countermeasures to be tested

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economic

ANALYSIS

Question #1 : Is cost parity required to win?

HYPOTHESIS #1

An economically competitive infrastructure is necessary to provide products & services that successfully compete.

SUPPORTING ASSUMPTIONS

A broadband network is necessary to meet the breadth of anticipated services.

Non - low cost providers can not differentiate their product and services to successfully compete.

assumes

EW - programmers
Buyers and sellers will have multiple transport options.

Packagers and producers will have significant power.

When buyers have power, low cost solutions are essential long term.

Switching costs for early adopters will be surmountable.

ANALYTICS

TBD

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Are standards and when they occur important or not important?

Today's infrastructure is not economically viable (noise, noise) to support multiple services. DSL will not be enough

ANALYSIS

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Question #2 : Does being a common carrier add value?

HYPOTHESIS #2

There is value in being a common carrier.

If not, can disadvantages be overcome?

SUPPORTING ASSUMPTIONS

Transport providers will retain value by offering multiple interfaces and consolidating traffic.

Cost parity in transport is an important component in winning with wholesalers.

First mover advantage increases the entry barriers initially and provide time to reach cost parity.

A competitive strategy that blocks new entrant's access to immediate cash flows increases the entry barriers and provides time to reach cost parity.

Relative quality of common carriers etc.

ANALYTICS

TBD

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(Regulatory parity?
new questions)

an effective branding
indirect capital relative to other alternatives
slows

minimizes return

Is an integrated play possible?

(penetration)
exclusivity - integration an advantage

ANALYSIS

Question #3 : Will integration up the value chain provide meaningful advantage?

HYPOTHESIS #3

^{7 in 10}
A level 2 / 3 approach to the market is sustainable in the face of competitors offering 1/2/3/4/5 solutions.

SUPPORTING ASSUMPTIONS

Superiority in performance (cost, coverage, and/or flexibility) is essential to win.

Level 4/5 providers will not be able to establish exclusive or price discriminating arrangements

Level 2 superiority adds unique customer value

↓
EU
IP

Control of existing 4/5 providers does not provide successful competitive advantage

ANALYTICS

TBD

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Are current 4/5 players the winners or will there be new entrants with more impact

ANALYSIS

Question #4 : Will a superior front end provide meaningful advantage?

HYPOTHESIS #4

SUPPORTING ASSUMPTIONS

ANALYTICS

#2
// (low) front end
necessary to
Front end and navigation
systems and services will
define the winning
players.

Coupled w/
legal products

An easy to use but
comprehensive front end will
add superior value to the
customer

TBD

A branded front end will be
difficult to displace

Competency in human factors
is the *sine qua non* for a mass
market solution.

Can the second player come out
enough position vis a vis the
unconformant in light of
that unconformant's
competitive response?

*1
↓

Navigation
and superior service
delivering differentiates
from unconformant

linked to branded products
Layers of competitive advantage

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COUNTERMEASURES

Several should be developed and tested to generate data & results to support standardization

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PLAINTIFF'S
EXHIBIT

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MEMO

To: Andy Eiseman, Audley Webster
From: Jill Schmidt
Date: June 17, 1994
Subject: VIP Updates
Cc: Mitchell Ashley

Here is an update on each of the VIPs with which my team is working. If you have questions or need additional information, please give me a call at (303)541-4105.

IM2 is the only VIP in development currently. With the expected development time for VIPs estimated currently (6-7 months for the smaller VIPs), additional developments should start soon if we need to deploy the VIPs in January through March of 1995. We have to balance the development time with vendor and platform support for the VIPs. Currently, development would still be frustrating for VIPs because software development steps and APIs are still changing and not documented.

Our team would appreciate updates on the business/marketing negotiations with each of the information providers. This will help us prepare and better communicate with the information providers on an ongoing basis. Currently, we have little information about the progress of an IP during the negotiations between technical feasibility completion and a decision to continue. Also, continuing updates on IP strategy or marketing participation with our team would be helpful because our interactions with IPs often touch on the borders of marketing and business issues.

Home Shopping (nickname: "IM2" - IVE's project name):

This IP is in the development phase. They are currently planning to test in Atlanta in September and deploy in Omaha in November. The biggest issue this team has communicated to us continues to be frustration with accessing Digital software and APIs (Application Programming Interfaces). They recently arranged a loan-of-equipment loan from Digital. This allows them to begin development on the two-box digital system, so they do not have to wait until August 1st for the necessary software from Digital. However, they will still need to test and, possibly, rework the software once the August 1st delivery is available. They are using the ISIS platform for client/STT software development.

We also participated in the first external VIP legal review. This meeting was useful and we discovered the feasibility analysis was a useful tool for this purpose. Some changes will be made to the feasibility analysis outline to improve it's usefulness here. Specifically, the service description will be more detailed. Also, it was suggested that a legal review be performed earlier in the VIP process. With your help, I would like to expand our VIP process flowchart to further define the legal process and marketing interaction.

RSVP (no nickname vet):

The technical feasibility was completed and delivered in February. We understand business negotiations continue. We believe RSVP is pursuing NDAs with Omaha hospitals. Technical contact is very limited at this time. Technical feasibility report sent to Phil Corman.

NTN (no nickname vet):

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The technical feasibility was completed and delivered in February. Business negotiations continue. A U S WEST legal review opened a few new questions which need to be answered prior to further progress. Most are business related, but one requires the technical team to characterize the traffic between NTN's headend and the Omaha VOC. Phil expects to complete this characterization for Terri Ford by 6/22 as requested.

Progress on the prototype is stalled until a Digital development environment is obtained (see issue for IM2 above). Note: The goals of this prototype are to evaluate the ISIS tools and to better estimate development efforts for all IPs.

Help Education 2000 (nicknamed "Roger"):

The technical feasibility was completed and delivered in April. We are waiting for input on the business approach and how to proceed. In the meantime, I had a discussion with Mike Rouleau, of U S WEST Interprise. He is planning an internet trial in Omaha. He has discussed HE2000 with Roger. He is trying to understand how to connect to this with the Omaha broadband trial. Even without the connection, HE2000 could use the internet trial as an alternative to the broadband trial. Technical contact is very limited at this time. Technical feasibility report sent to Phil Corman.

Seth

Time (nicknamed "nod"):

The technical feasibility will begin 6/24 with a visit to Iconic.

Geosphere (nicknamed "Atlas"):

The technical feasibility for this service was aborted because the technical contact we were given did not understand the details of the Geosphere database and was not covered by an NDA with U S WEST. Nancy Sullivan was following up with Geosphere. I understand that action item is now Seth Morrison's. We are awaiting word on how to proceed. Technical contact is non-existent because of the NDA concerns.

SoftAd (no nickname yet):

The technical feasibility analysis was completed and delivered in May. An update was issued at the beginning of June. We were requested to changed the focus to a Fidelity application from a Ford application. We will meet with SoftAd on 6/27 to discuss that application. [Technical feasibility report sent to Phil Corman.]

MNI (nicknamed "Pan"):

The technical feasibility was started this week on a technical visit to MNI. They had less service definition than expected. We will adapt the feasibility analysis to handle the options in this case. MNI mentioned they had deadlines and could not devote time to this for at least one month. They also had concerns about USWC vs. IVE which I believe need to be cleared up if we want to keep this IP interested.

Accurate (no final nickname identified):

The technical feasibility analysis was completed in two weeks and delivered in May. We are waiting for feedback and information on next steps.

Business Video-on-Demand (nickname: "BTV" - the SBG project name):

The technical feasibility should be complete Friday, June 17th. The major issues are OSS related.

Other VIPs (pre-feasibility):

There are other VIPs with whom we have had limited contact. These are:

- HBO-on-Demand: I understand the 6/24 meeting will discuss this application, also.

Action item
Backdoor
Action item

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- Apple eWorld: We had an informal first meeting with two people from Apple eWorld in Boulder. They are interested in using the Apple settop box and would like to be the main screen/paradigm for IVDS. They are not willing (presently) to port their application to 3DO. I am unsure if they are willing to be an icon within the navigator.
- TWIG: We sent TWIG the Interface Specification, so they could conduct an internal feasibility assessment. They have not contacted us again. (This is more of a tool than an IP.)
- We participated in first level, informational meetings with Josten's and America OnLine but no further action has been requested. Also, no further action was requested on KSL after we forwarded their written request.

Summary:

VIP	Progress	Comments
MRG (IM2)	In development	
RSVP	Feasibility completed	Report sent to DEC
NTN	In legal review	
HE2000 (Roger)	Feasibility completed	Awaiting input on when/how to proceed. Report sent to DEC.
Time (nod)	Feasibility to begin 6/24	
Geosphere (Atlas)	Feasibility stopped	NDA and contact problems
SoftAd	Initial feasibility complete, will redo for new area	Report sent to DEC.
MNI (Pan)	Feasibility begun 6/17	
Accutrade	Feasibility completed	Awaiting input on when/how to proceed

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Multimedia Medical Information
Sixty Six Church Street
Cambridge Massachusetts 02138
617.354.6066 FAX 617.864.8840

In the Matter of:
U S West Communications
FCC 98-147

September 24, 1998
Exhibit F

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July 14, 1993

Mr. Dan Connolly, C.I.O.
Immanuel Medical Center
6901 North 72nd Street
Omaha, NE 68122

Dear Dan:

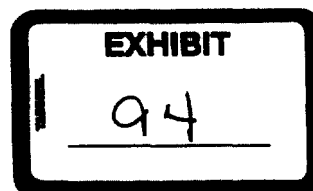
I thought I would follow up our phone conversation of last week after our introduction by Tom Ott of SMS.

RSVP Information provides medical patient information and informed consent programs which prepare the patient for specific procedures which they are about to experience. The programs are delivered in an interactive multimedia format which documents what the patient sees and how the patient responds. They provide information through the use of motion video, audio, animation, graphics and text. Medical staff selects specific viewing sections for each patient which they deem appropriate for that patient's condition or treatment at that particular time.

Currently our programs are delivered on PC's in clinics and hospitals during a patient visit. Many hospital administrators believe, as we do, that in the future this information will be viewed by the patient in the home prior to the hospital visit or procedure. This will save staff and facility time while providing the patient with a comfortable environment without the time pressure of the hospital's schedule.

Simply put, we propose that this test consist of the health care provider selecting information, via menus, for the patient to view at home prior to that patient's specific procedure or treatment. The patient will enter an access code into the set-top device which will bring up the selected programming. The system will document the patient's responses for the health care provider's records. As I mentioned in our phone conversation, there are many questions to be discussed: which of our programs to offer, what form will they take, where will the data reside, which neighborhoods in the test area overlap with your patient population?

At this time, I envision your responsibilities as a health care provider participating in this test to be primarily one of check and balance. We provide the information which has been created by a team from the Boston and Cambridge medical community. Your facility will review the content for compatibility with your practice standards, we will include your staff in the video and add your insignia to the delivery screens; the patient will perceive this as being delivered from your facility.



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PL Ex 32

Mr. Dan Connolly
July 14, 1993
page two of two

During the test, your staff will determine which patients are eligible (by procedure type for which there is an existing program and by neighborhood) to receive the information at home. You will also work with us to determine the location for delivery of the patient response information. There will also be a need for your community relations staff to notify this specific geographic patient population about their option to receive this information at home, and then have the ability discuss it with their physician in a more informed dialogue.

This is a very exciting opportunity for all of us. We have been experiencing positive acceptance of our programs and delivery format for over a year. Now with the possibility of this test, we all can break new ground.

I will be meeting with the project executives at U.S. West in late August to discuss the technical and logistics issues involved. Subsequent to that meeting we can begin to set our objectives and tasks more clearly.

Please call if any of this information requires amplification or clarification.

Sincerely,

Herman Budnick
President

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BCC112

RSVP MED

Multimedia Medical Information

Sixty Six Church Street
Cambridge Massachusetts 02138
617.354.6066 FAX 617.864.8840

In the Matter of:
U S West Communications
FCC 98-147

September 24, 1998
Exhibit G

PL 44

July 21, 1993

Mr. Larry Levine
Executive Director, Video
U.S. West Communications
1801 California Street, Suite 4520
Denver, CO 80202

Dear Larry:

I thought I would follow up our phone conversation with a brief background on RSVP Information and some thoughts to ponder before our August 23 meeting.

RSVP Information provides medical patient information and informed consent programs which prepare the patient for specific procedures which they are about to experience. The programs are delivered in an interactive multimedia format which documents what the patient sees and how the patient responds. We provide information through the use of motion video, audio, animation, graphics and text. Medical staff selects specific viewing sections for each patient which they deem appropriate for that patient's condition or treatment at that particular time.

Currently our programs are delivered on PC's in clinics and hospitals during a patient visit. Many hospital administrators believe, as we do, that in the future this information will be viewed by the patient in the home prior to the hospital visit or procedure. This will save staff and facility time while providing the patient with a comfortable environment without the time pressure of the hospital's schedule.

Simply put, we propose that RSVP and U. S. West jointly conduct a test to deliver health care information to the home. I envision this effort as follows:

The information will be RSVP programs which are currently available and be perceived by the patient as information being provided by Omaha hospitals (Immanuel Medical Center and Mercy Midlands);

to simplify this test, only standard, non-customized, programs will be offered, (that is, not individually patient specific as is our normal delivery method);

the digitized video information will reside on an appropriate video server at U.S. West, a hospital or third party;

hospital patients residing in neighborhoods which are within the fiber test area will be notified through a hospital mailing that they are eligible to complete generalized informed consent and other forms via the link;

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800004

Mr. Larry Levine
July 21, 1993
page two of two

the patient will enter an access code into the set-top device which will bring up the selected program;

the patient's responses will be fed uplink and documented for the health care provider's records (storage location to be determined).

At this time, I envision the hospitals' responsibilities to be primarily one of check and balance. We provide the information which has been created by a team from the Boston and Cambridge medical community. The hospital will review the content for compatibility with their practice standards, we will include their staff in the video and add their insignia to the delivery screens.

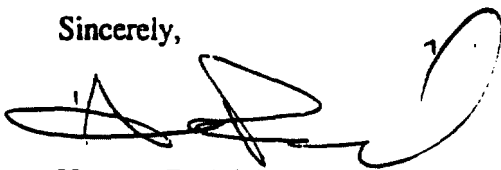
During the test, hospital staff will determine which patients are eligible (by procedure type for which there is an existing program, and by neighborhood) to receive the information at home. There will also be a need for the hospitals' community relations staffs to notify this specific geographic patient population about their option to receive this information at home, and then have the ability to discuss it with their physician in a more informed dialogue.

This is a very exciting opportunity for all of us. We have been experiencing positive acceptance of our programs and delivery format for over a year. Now with the possibility of this test, we all can break new ground.

Please call if any of this information requires amplification or clarification, I will be away from the office from July 30 through August 16.

I hope this information provides you with questions and a framework for our discussion on August 23. I look forward to our meeting.

Sincerely,

A handwritten signature in black ink, appearing to be "Herman Budnick", written over a horizontal line.

Herman Budnick
President

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800005

Video Information Provider Feasibility Analysis

VIP: RSVP MED, Inc. (Response Sensitive Video Production)

Contacts: Herman Budnick - President
Dick Monahan - Senior Architect
Paul Rubenstein - Business Lawyer
Jim Oliver - Technical

Description: RSVP supplies systems to hospitals which allow the staff to create individualized "viewings" or tutorials for patients. Touch sensitive screens are used by patients to review medical information and identify areas on which they need additional information.

PCP: Phil Griffin

Date: February 15, 1994

1.0 VIP Technical Description

RSVP's service provides multimedia presentations of patient information. Their service is also known as the Clinical Information Center, or CIC. From the patient's perspective, it is a simple touch screen interface which provides them a personalized presentation of audio, video, text, and graphics.

The system architecture supporting the patient's touch screen interface is flexible. It may be: 1) a stand-alone IBM PS/2 multimedia PC; 2) multiple PC's attached to a LAN, sharing databases; and 3) main frame based. In addition, there is a Microsoft Windows desktop machine used by the hospital staff to customize the presentation (via a script) for each patient, and to generate reports after the patient has interacted with the CIC.

There are two primary databases supporting the CIC, the Patient database and the Content/Navigation database. The CIC system allows a hospital staff member to enter data about a patient into the Patient database. Based upon the patient's needs and a care giver's input, the CIC operator then customizes a "script" for the patient. The script will contain "pointers" into the Content/Navigation database which contains the multimedia assets. The current size of the Content/Navigation database is approximately 5000

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records and is updated monthly, at most. RSVP uses a SQL database from Q+E Software for both the Patient and Content/Navigation databases.

The client software (also MS Windows) controlling the touch screen interface will first identify a patient using the system based upon a series of digits entered. The "player" software will then download script records and convert them into the events defining the multimedia presentation. The interactive presentation occasionally requires the patient to answer "yes/no" type questions. The responses (and whether the patient has navigated the entire presentation) are recorded into the patient database and form the data for report generation.

RSVP has been working on a new release of CIC in which the audio/video assets are encoded in MPEG 1 format (they use a company/service named "Real Magic" for MPEG). MPEG encoding is done at 9 Mbps. This MPEG based release is due out in early March.

2.0 VIP Conversion Alternatives

During our discussions with RSVP, a number of conversion techniques were discussed, addressing various parts of the system. These techniques are described in Alternative 'A' and departures from them are described in Alternative 'B'.

The following are statements or requirements vocalized by RSVP in our discussions:

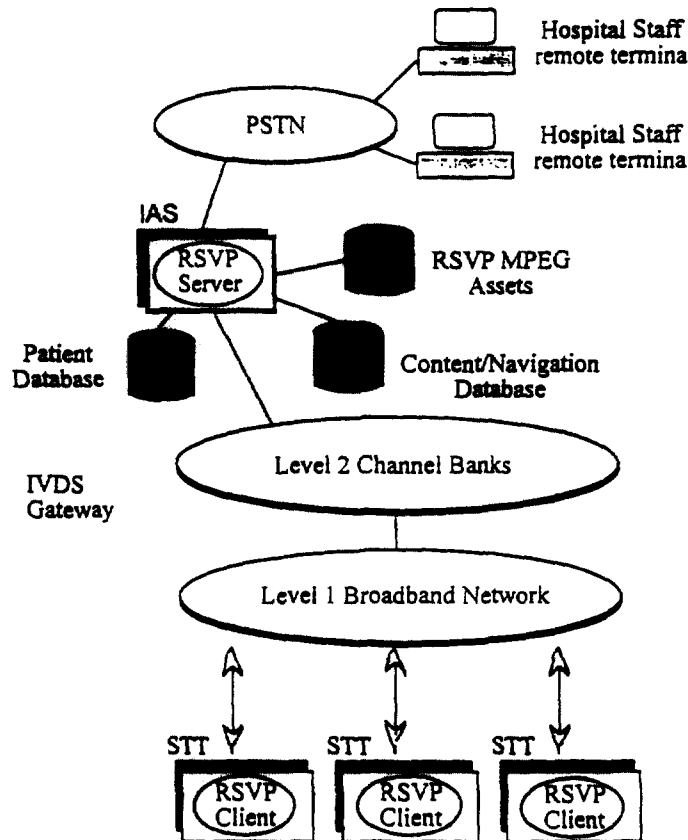
- o The touch screen interface will be replaced by the patient's TV and the IVDS hand held remote, making use of the numeric and navigational keys.
- o Patients of at least two hospitals in the Omaha area are to be served (via IVDS) by CIC in their homes.
- o Remote dial-up (using off-the-shelf remote access software) to IVDS gateway CIC databases is required by the hospital staff to update patient scripts.
- o RSVP may require the capability, at the hospital, for a staff member to access/view the CIC service as if they were a patient.

2.1 Alternative 'A'

Figure A-1 shows the proposal for Alternative 'A'. It includes components relative to the RSVP conversion and does not show all internal gateway processors or interfaces.

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PSTN - public switched telephone network
 STT - set top terminal
 IVDS - Interactive Video Delivery System
 Level 2 - IVDS gateway access level
 Level 1 - broadband network access level
 IAS - Interactive Application Server

This alternative suggests the following conversions:

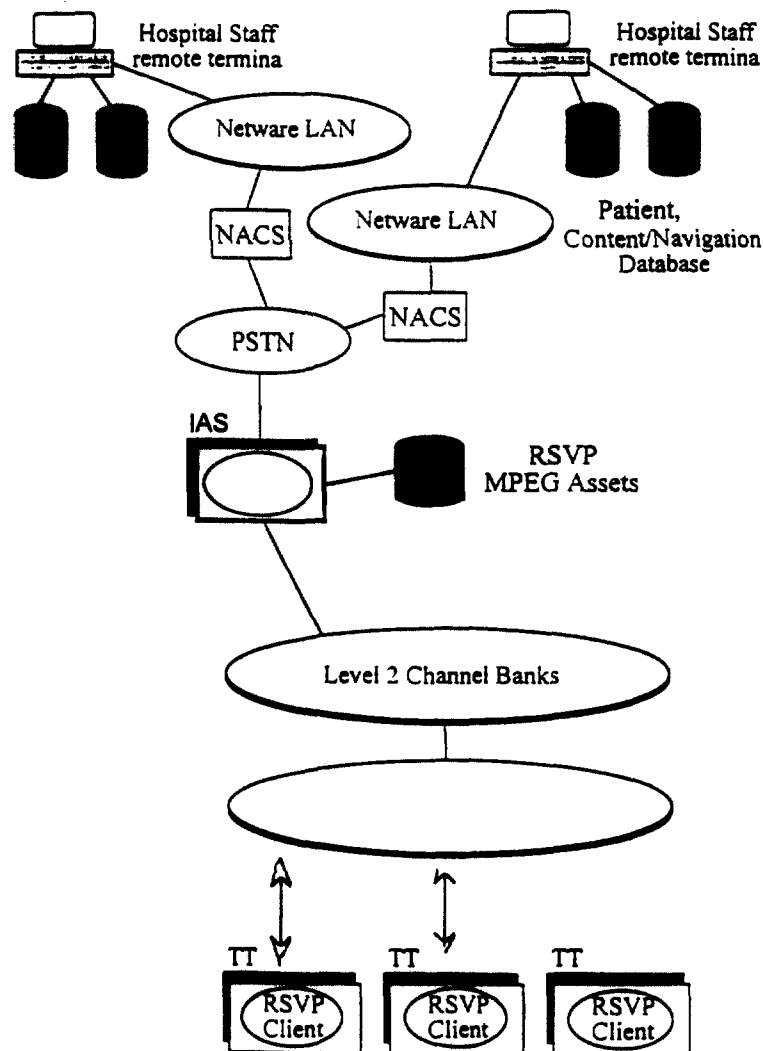
- o Porting/rewriting the client software (which currently controls the touch screen interface) to the STT 3DO environment. This probably includes the "player" software described above.
- o If instead the "player" software is structured as a server - handling multiple, simultaneous client/patients, it can be ported to the IAS as the RSVP server application. (Note: if not needed by a VIP, there is no system requirement for a VIP to provide a server application).
- o The Patient and Content/Navigation databases are relocated to the IVDS gateway, onto an IAS. They can be accessed by the RSVP client application on the STT, by an RSVP server application (if needed), or via remote dial-up access. It is suggested that the Q & E Software database and engine be ported to the OSF/1 environment on the IAS.

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- o The MPEG 1 encoded audio/video assets are installed on an IAS, and are retrieved and played at the STT using the 3DO audio/video playback functions.
- o Any other miscellaneous, read-only type data can be stored at the IVDS gateway in a file system and retrieved by the STT RSVP client application using the 3DO remote file system functions.

2.2 Alternative 'B'



PSTN - public switched telephone network
 STT - set top terminal
 IVDS - Interactive Video Delivery System
 Level 2 - IVDS gateway access level
 Level 1 - broadband network access level
 IAS - Interactive Application Server
 NACS - Novell Asynchronous Comm. Server

This alternative suggests the following conversions:

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- o Porting/rewriting the client software (which currently controls the touch screen interface) to the STT 3DO environment.
- o The "player" software is structured as a server in the IAS - handling multiple, simultaneous client/patients. It accepts requests from the RSVP clients and retrieves patient and content/navigation information from the remote databases residing at the hospital.
- o Novell asynchronous communication servers are added at each hospital's LAN. Depending on access rates, POTS phone lines may need to be leased.
- o The MPEG 1 encoded audio/video assets are installed on an IAS, and are retrieved and played at the STT using the 3DO audio/video playback functions.
- o Any other miscellaneous, read-only type data can be stored at the IVDS gateway in a file system and retrieved by the STT RSVP client application using the 3DO remote file system functions.

2.3 Concerns Regarding Conversion

2.3.1 Technical Concerns (High, Medium, Low Concern: Alternative A,B)

- o **(H:A) IVDS Gateway Back-end Communication Facility:** RSVP needs asynch dial-up access to regularly update the Patient and Content/Navigation databases. Will this be through a dedicated port on the IAS, or via an asynchronous communication server located on a back-end LAN at the gateway? For either of these choices, what hardware and software facility is IVDS prepared to offer to RSVP? What interface cards are available for the IAS today?
- o **(H:B) Access Rates to Remote Databases:** How much data needs to be read or written from/to remote Patient/Content/Nav databases, and at what frequency? Will access rate be sufficient for an interactive user?
- o **(M:A,B) Porting Windows applications to STT:** If an application is a true Windows application (using Windows dialog boxes, pull down menus, scrolling, dependent on VGA resolution, extensive use of Windows fonts, etc.) then a rewrite is probably necessary. On the other hand, an application not tightly integrated with Windows and using bit maps for screen displays will port much easier.
- o **(M:A) Porting Patient and Content/Navigation databases:** We are investigating whether Q & E Software offers direct support for the OSF/1 environment. Since OSF/1 complies to POSIX and SVID standards, there should be some level of compatibility.
- o **(M:A) Remote Database Access:** Is Q & E Software supported by their own remote access client software or by some third party provider of communications software? VideoWorks Hypermedia databases have a very low level human interface which is not user friendly.

- o (M:A,B) Hospital STT hookup: Can we provide a cable drop at a hospital in our trial area? What other work around could we propose for this?
- o (L:A,B) Porting Windows applications to IAS: Unknown - dependent on what functionality server code is providing.

2.3.2 Human Factors Concerns

2.3.2.1 User Input

This service does not appear to require any extensive alphabetic entry, which is good.

2.3.2.2 Display Characteristics

The current implementation of RSVP is probably designed for the patient to sit fairly close to the display screen. Since IVDS strives to serve viewers sitting an average of 8-12 feet from a 13 inch color TV, certain dimensions of the screen may need to change. For example, the video may need to occupy a larger area on the screen.

Also, it is not clear what amount of text may be shown on all screens. Human Factors feels a limit of about 10 lines of 25 characters each, on the entire screen, would be the limit for viewing.

If special fonts are needed, they would have to be developed by RSVP. IVDS is supplying two fonts: a New York-like serif, and a Geneva-like sans-serif.

2.3.2.3 Response Time

The latency with respect to starting a video and having it appear is expected to be about 750 ms. This needs to be verified as acceptable by RSVP.

2.3.3 Other Concerns

None

3.0 Recommendation for Conversion

Alternative 'B' is recommended. It offers the smoothest conversion path for RSVP. Its primary benefit over Alternative 'A' is allowing the Patient and Content/Navigation databases to stay intact without modification. It uses standard interfaces (POTS and remote Netware) to communicate with the IVDS gateway.

3.1 Assessment of the Magnitude of Conversion

TBD.